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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,920	01/03/2002	Tomoyuki Kayama	217916US0	2282

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HAILEY, PATRICIA L

ART UNIT	PAPER NUMBER
1755	

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5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/033,920	Applicant(s) KAYAMA ET AL.	
	Examiner Patricia L. Hailey	Art Unit 1755	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9,10 and 12-21* is/are rejected.

7)☒ Claim(s) *6-8 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicants' Priority Document was filed on March 27, 2002.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "molten-salt type catalyst" recited in the instant claims is indefinite. The word "type" includes elements not actually disclosed or recited and the scope of the claims containing this word is unascertainable.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-5, 9, 12-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pennington et al. (U. S. Patent No. 4,943,643).

Pennington et al. teach a molten salt catalyst containing nitrates such as a substantial amount of lithium nitrate (col. 3, lines 22-23), as well as a sodium nitrate-potassium nitrate salt mixture (col. 3, lines 33-36).

A preferred molten salt catalyst comprises from about 20 to 40 mole percent lithium nitrate and from 60 to 80 mole percent of one or more other alkali metal or alkaline earth metal nitrates, such as mixtures of lithium, sodium, and potassium nitrates. See col. 5, lines 6-20 of Pennington et al.

The molten salt catalyst may also contain a co-catalyst such as silver nitrate, or palladium on alumina. If the co-catalyst is used, it is employed in a catalytically effective amount of less than about 5 weight percent based on the total amount of co-catalyst plus molten salt catalyst. See col. 6, lines 15-55 of Pennington et al. This disclosure is considered to read upon the claim limitations "solid support" (as recited in claims 1 and 5) and "oxidation facilitating ingredient" and "noble metal" (recited in claims 4 and 17-18).

Pennington et al. do not teach or suggest that the molten salt catalyst is "for purifying particulate materials, which are contained in an exhaust gas emitted from an internal combustion engine and contain carbon", as recited in the instant claims. However, given that the molten salt catalyst disclosed in Pennington et al. contains the same alkali metal nitrates as instantly claimed and contains components that read upon what Applicants' claim as a "solid support" and an "oxidation facilitating ingredient", it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect the molten salt catalyst of Pennington et al. to be able to reasonably function as a catalyst for purifying particulate materials, absent the showing of convincing evidence to the contrary. Further, the phrase "for purifying particulate

materials, which are contained in an exhaust gas emitted from an internal combustion engine and contain carbon" is considered to be one of intended use and is not given patentable weight.

Because the molten salt catalyst of Pennington et al. contains the same and comparable components as recited in Applicants' claimed "molten-salt type catalyst", one of ordinary skill in the art would reasonably expect that the catalyst of Pennington et al. would be useful in purifying particulate materials. It is well settled that when a claimed composition appears to be substantially the same as a composition disclosed in the prior art, the burden is properly upon the applicant to prove by way of tangible evidence that the prior art composition does not necessarily possess characteristics attributed to the CLAIMED composition. In re Spada, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Circ. 1990); In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980); In re Swinehart, 439 F.2d 2109, 169 USPQ 226 (CCPA 1971).

8. Claims 1-5, 9, 10, and 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pennington (U. S. Patent No. 4,959,486).

Pennington teaches a molten nitrate salt catalyst, which may be a mixture of molten lithium and potassium nitrate. See col. 3, lines 50-55 of Pennington.

The nitrate salt catalyst may be any one of alkali or alkaline earth nitrates, or mixtures thereof. See col. 4, lines 3-6 of Pennington.

The nitrate salt catalyst may also contain a co-catalyst, such as palladium on alumina, silver nitrate, or an elemental metal, its oxide, or its hydroxide. Examples of the latter include molybdenum oxide. See col. 4, line 53 to col. 5, line 3 of Pennington.

If used, the co-catalyst is employed in an amount of less than about 5 weight percent, based on the total amount of co-catalyst plus molten salt catalyst. See col. 5, lines 13-18 of Pennington.

The molten salt catalyst is employed in an amount on a weight basis of between about 5 times and about 100 times the total weight of the reactants employed. See col. 5, lines 29-32 of Pennington.

Pennington does not teach or suggest that the molten salt catalyst is "for purifying particulate materials, which are contained in an exhaust gas emitted from an internal combustion engine and contain carbon", as recited in the instant claims. However, given that the molten salt catalyst disclosed in Pennington contains the same alkali metal nitrates as instantly claimed and contains components that read upon what Applicants' claim as a "solid support" and an "oxidation facilitating ingredient", it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect the molten salt catalyst of Pennington to be able to reasonably function as a catalyst for purifying particulate materials, absent the showing of convincing evidence to the contrary. Further, the phrase "for purifying particulate materials, which are contained in an exhaust gas emitted from an internal combustion

engine and contain carbon" is considered to be one of intended use and is not given patentable weight.

Because the molten salt catalyst of Pennington contains the same and comparable components as recited in Applicants' claimed "molten-salt type catalyst", one of ordinary skill in the art would reasonably expect that the catalyst of Pennington would be useful in purifying particulate materials. It is well settled that when a claimed composition appears to be substantially the same as a composition disclosed in the prior art, the burden is properly upon the applicant to prove by way of tangible evidence that the prior art composition does not necessarily possess characteristics attributed to the CLAIMED composition. In re Spada, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Circ. 1990); In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980); In re Swinehart, 439 F.2d 2109, 169 USPQ 226 (CCPA 1971).

Allowable Subject Matter

9. Claims 6-8 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

The cited references do not teach or suggest the limitations of claims 6-8 and 11, regarding the support material (claims 6-8) and the rare earth nitrates (claim 11).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (703) 308-3317. The examiner can normally be reached on Mondays-Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L. Bell can be reached on (703) 308-3823. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

Lynn Hailey/plh
Examiner, Art Unit 1755
January 21, 2003

Mark L. Bell
Supervisory Patent Examiner
Technology Center 1700